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TS-PIC-93810  
February 1993

SFUND RECORDS CTR  
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# AERIAL PHOTOGRAPHIC ANALYSIS OF THE NASA JET PROPULSION LABORATORY Pasadena, California

EPA Region 9





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AERIAL PHOTOGRAPHIC ANALYSIS OF THE NASA JET PROPULSION LABORATORY  
Pasadena, California

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Contract No. 68-CO-0050

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LAS VEGAS, NEVADA 89193-3478



# NOTICE

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## ABSTRACT

This report presents the results of a historical aerial photographic analysis of the Jet Propulsion Laboratory study area in Pasadena, California to identify waste disposal units such as impoundments, lagoons, and cesspool seepage pits for hazardous materials or compounds. The Jet Propulsion Laboratory is located on the border between Altadena in northwest Pasadena and La Canada and covers approximately 176 acres. Wastes associated with this laboratory study site include numerous types of materials and compounds used in the research of spacecraft propulsion and design, alternative energy sources, and pollution control. The Jet Propulsion Laboratory is being investigated by the U.S. Environmental Protection Agency's Region 9 office under its CERCLA program. This aerial photographic analysis used photographs spanning the period from 1941 through 1992. The results of the analysis will aid field investigators with establishing sampling programs and/or with possible enforcement actions.

The 1941 photograph revealed the study area, before the establishment of the Jet Propulsion Laboratory facilities, consisted of cultivated cropland, an equestrian park, and undeveloped rangeland. By 1946 Explorer Road was paved for vehicle access and several laboratory and test buildings had been constructed. Probable waste disposal structures including a pit, trench, and an impoundment were noted in the southeast portion of the facility adjacent to the Seco Arroyo in 1952; however, no waste disposal activity was noted at the pit, trench, or impoundment by 1964. These structures were not visible in 1972 due to the construction of a large parking lot. Additional construction of more laboratories and support buildings was observed throughout the facility on 1977, 1980, 1985, 1989, and 1992 photographs; however, no visible signs of leachate seepage, cesspool seepages, or seepages from waste disposal units were observed.

The Environmental Protection Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, prepared this report for the Agency's Hazardous Waste Management Division in Region 9 at San Francisco, California and the Office of Emergency and Remedial Response in Washington D.C.



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Figure 1. Study area location map, California 1:4,500,000.





Figure 1. Study area location map, California 1:4,500,000.



## INTRODUCTION

This report presents the results of a historical aerial photographic analysis of the Jet Propulsion Laboratory (JPL), operated for the National Aeronautics and Space Administration (NASA) by the California Institute of Technology in Pasadena, California (Figures 1 and 2). The object of the study is to identify locations such as impoundments, lagoons, and cesspool seepage pits where hazardous materials or compounds were disposed. Wastes included numerous types of materials and compounds used in the research of spacecraft propulsion and design, alternative energy sources, and pollution control. The JPL study site is located on the border between northwest Pasadena and La Canada and covers approximately 176 acres. The annotated JPL facility boundary and building numbers annotated in this report are based on a JPL facility map supplied by EPA Region 9 (Figure 3). This site is being investigated by the U.S. Environmental Protection Agency's Region 9 office under its CERCLA program. This aerial photography analysis is based on selected historical photographs spanning the period from 1941 through 1992. The results of the analysis will aid field investigators with establishing sampling programs and/or with possible enforcement actions.

Other topics addressed in this report include surface water contamination, indications of leachate, drainage patterns, disposal and/or burial of solid, liquid, and/or sludge waste, and visible vegetation stress associated with facility operations.

The Environmental Protection Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, prepared this report for the Agency's Hazardous Waste Management Division in Region 9 at San Francisco, California and the Office of Emergency and Remedial Response in Washington D.C.



## METHODOLOGY

Stereoscopic pairs of historical and current aerial photographs were used to perform the analysis. Stereo viewing enhances the interpretation because it allows the analyst to observe the vertical as well as horizontal spatial relationships of natural and cultural features. Stereoscopy is also an aid in distinguishing between various shapes, tones, textures, and colors that can be found within the study area.

Evidence of waste burial is a prime consideration when conducting a hazardous waste site analysis. Leachate or seepage resulting from burial and dumping of hazardous materials might threaten existing surface or ground-water resources. Pools of unexplained liquid are routinely noted because they can indicate seepage from buried wastes and may enter drainage channels that allow contaminants to move off the site. An excellent indicator of how well hazardous materials are being handled at a site is the presence or absence of spills, spill stains, and vegetation damage. Trees and other forms of vegetation that exhibit a marked color difference from surrounding members of the same species are labeled "stressed", "damaged," or "dead" based upon the degree of noticeable variation. Vegetation is so labeled only after consideration of the season in which the photography was acquired.

Drainage analysis identifies the direction a spill or surface runoff would follow. Direction of drainage is determined from analysis of the photographs and from U.S. Geological Survey topographic maps. Whenever they are available, 7.5-minute quadrangle maps (scale 1:24,000) are used to show site location and to provide geographic and topographic information. The site boundaries as depicted on maps and photos within the report were selected by the analyst, and are not intended to be used as legal boundaries.

The U.S. Environmental Protection Agency's Statement of Procedures on Floodplain Management and Wetlands Protection (Executive Orders 11988 and 11990, respectively) requires EPA to determine if removal or remedial actions at hazardous waste sites will affect wetlands or flood plains and to avoid or minimize adverse impacts on those areas. To aid in compliance with these orders, significant wetland areas



located within and adjacent to the site have been identified when present. However, these sites have not been visited to verify the accuracy of wetland identification.

Results of the analysis are shown on annotated overlays attached to the photos. The following table provides documentation of the photographs used in this report:

TABLE 1. DOCUMENTATION OF AERIAL PHOTOGRAPHY

Site name, location, geographic coordinates, and SSID#	Figures	Date of acquisition	Original scale	Film type*	Photo source†	Photo I.D.	Frames
NASA Jet Propulsion Laboratory	4 5	05-06-41 02-27-46	1:10,000 1:49,900	B&W B&W	FAIR FAIR		38 69
La Canada, California	6	08-15-52	1:23,600	B&W	EROS	VP	73
	7	11-17-52	1:20,000	B&W	ASCS	AXJ	176
34°12'06"N	8	07-28-64	1:24,000	B&W	EROS	VAWW	252
118°10'24"W	9	09-20-72	1:30,000	B&W	EROS	VCYY	9-11
	10	11-25-77	1:40,000	B&W	EROS	VEHB	36
SSID # CA-2U	11	10-21-80	1:24,000	B&W	EROS	VEZS	2-33
	12	07-03-85	1:31,000	B&W	WAC	WAC-85	1-2
	13	08-03-89	1:40,000	CIR	EROS	NAPP	71
	14-17	09-04-92	1:6,000	CC	EMSL	92810	See figures

\*Film type identification:

B&W: Black-and-white  
CIR: Color Infrared  
CC: Conventional Color

†Photo source identification:

EROS: U.S. Department of the Interior, Geological Survey, Earth Resources  
Observation Systems Data Center, Sioux Falls, South Dakota

ASCS: U.S. Department of Agriculture, Agricultural Stabilization and Conservation  
Service, Salt Lake City, Utah

WAC: WAC Corporation, Eugene, Oregon

FAIR: Fairchild Aerial Photography Collection, Whittier College, Whittier, CA

EMSL: U.S. Environmental Protection Agency, Environmental Monitoring Systems  
Laboratory, Las Vegas, Nevada



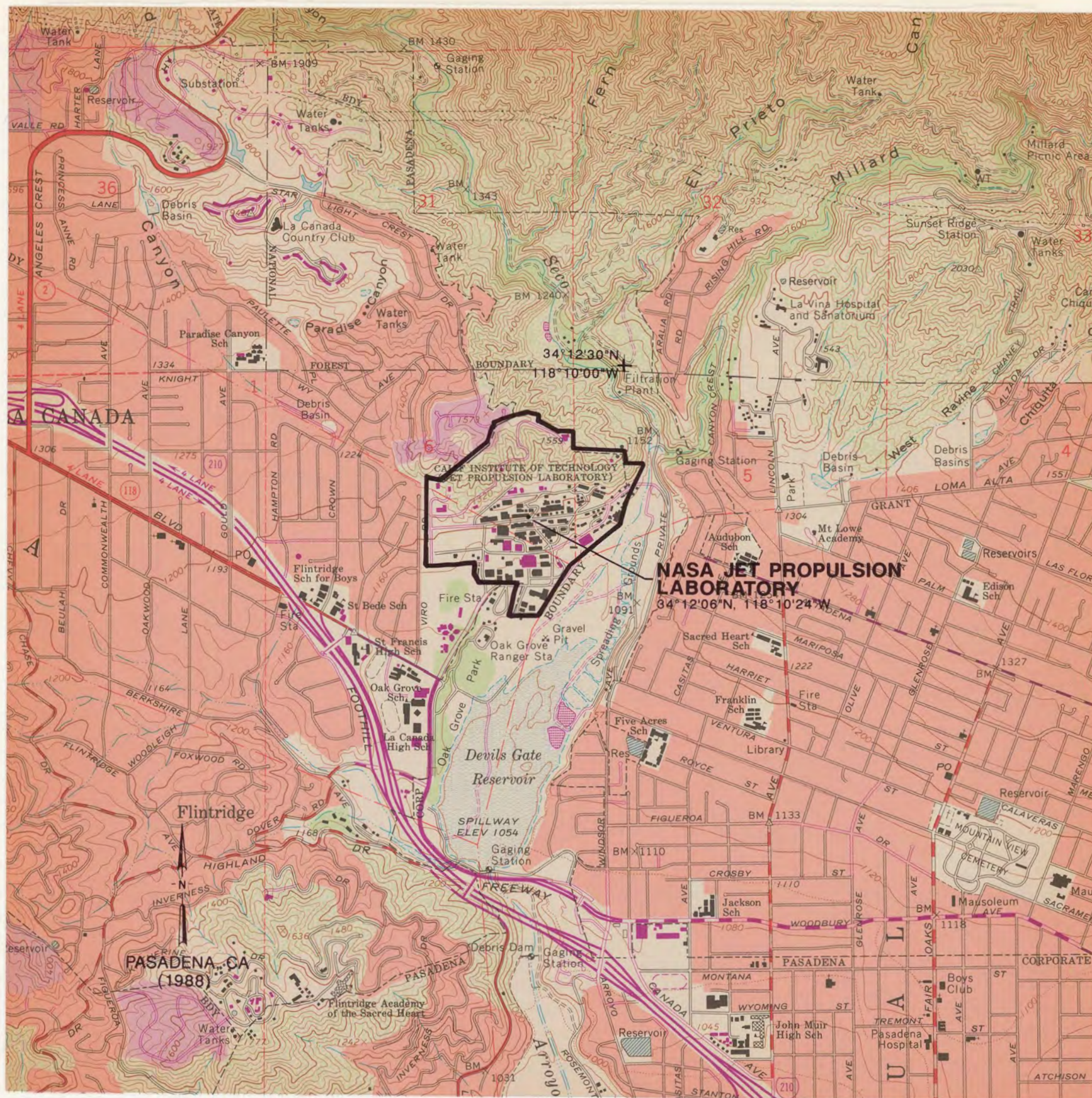


Figure 2. Local study area location map, Pasadena, California. Scale 1:24,000.



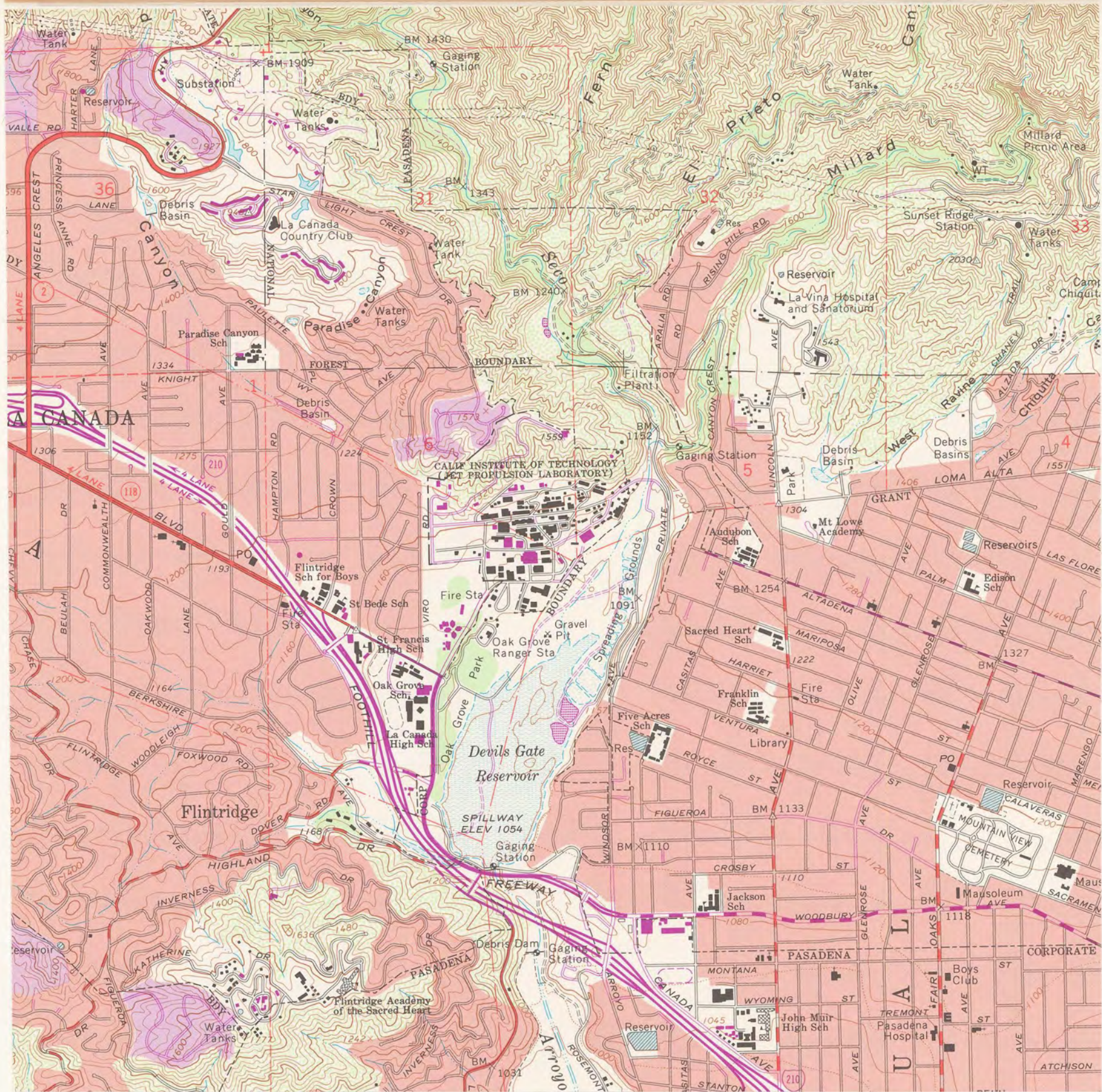


Figure 2. Local study area location map, Pasadena, California. Scale 1:24,000.



## ANALYSIS SUMMARY

This report presents the results of an intensive historical aerial photographic analysis of the NASA's JPL facility to identify waste disposal units such as impoundments, lagoons, and cesspool seepage pits for hazardous materials or compounds. The study site is located on the border between northwest Pasadena and La Canada, California and covers approximately 176 acres. This report used 13 selected dates of aerial photographs spanning the time period from 1941 through 1992.

The 1941 photograph revealed the study area, before the establishment of the Jet Propulsion Laboratory facilities, consisted of cultivated cropland, an equestrian park, and undeveloped rangeland. By 1946 Explorer Road was paved for vehicle access and several laboratory and test buildings had been constructed. Probable waste disposal structures including a pit, trench, and an impoundment were noted in the southeast portion of the facility adjacent to the Seco Arroyo in 1952; however, no waste disposal activity was noted at the pit, trench, or impoundment by 1964. These structures were not visible in 1972 due to the construction of a large parking lot. Additional construction of more laboratories and support buildings was observed throughout the facility on 1977, 1980, 1985, 1989, and 1992 photographs; however, no visible signs of leachate seepage, cesspool seepages, or seepages from waste disposal units were observed.

The JPL facility is on the south-facing slope of the La Canada hillside; consequently, rainwater runoff transects the JPL facility as it flows south to the Seco Arroyo. Open drainage channels and covered storm sewers direct this runoff into the Seco Arroyo. Because of the location of the site and its close proximity to the Seco Arroyo, a 100-year flash flood event could inundate the southern portion of the site and/or overflow the facility's storm sewer system.



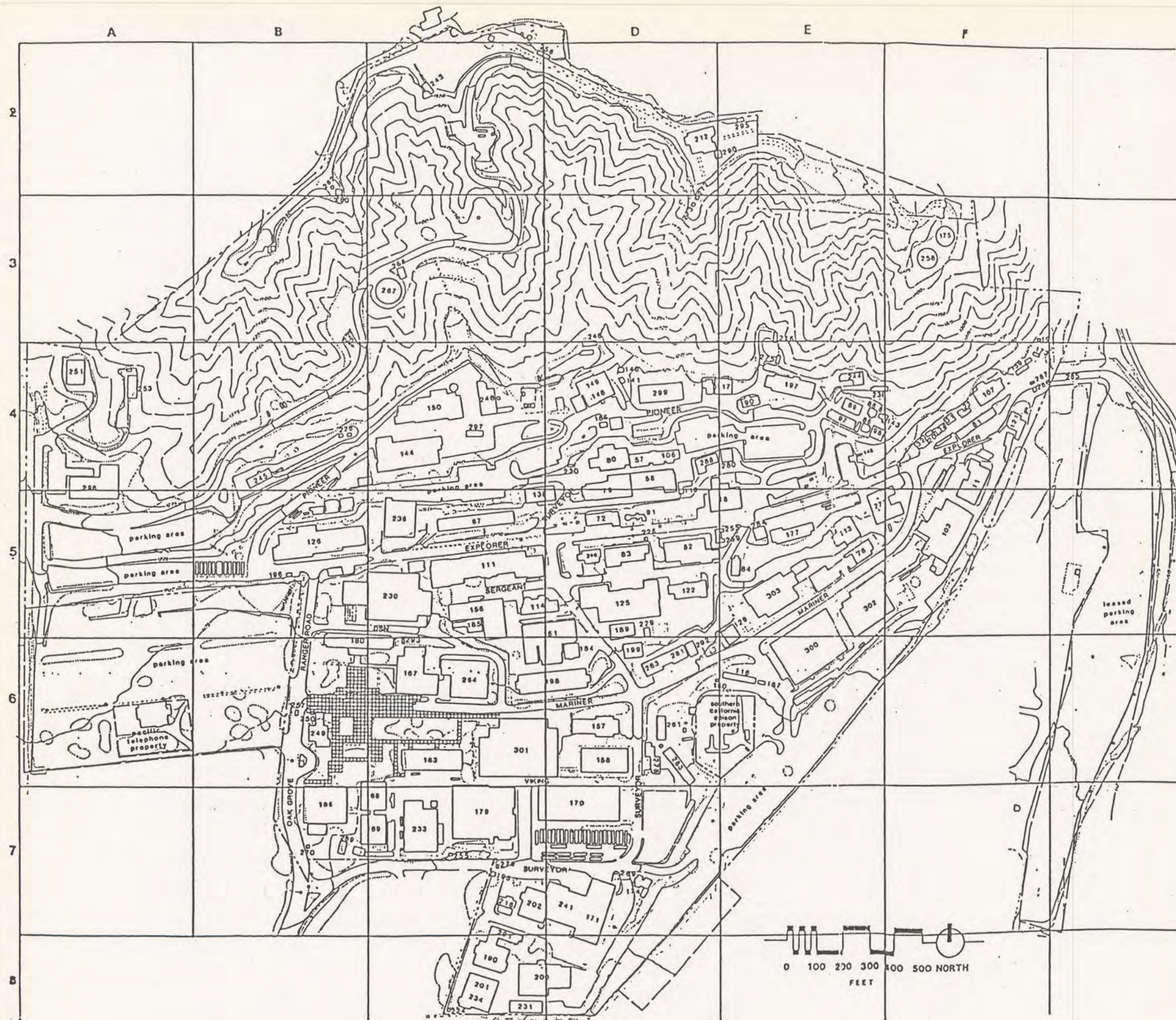


Figure 3. Jet Propulsion Laboratory, Existing Laboratory Facilities Map. Approximate scale 1"=400'.



TABLE 2. JET PROPULSION LABORATORY

Building number	Building title	Location	Building number	Building title	Location
11	SPACE SCIENCES LABORATORY	4-F	198	CONTROL SYSTEMS LABORATORY	6-D
18	STRUCTURAL TEST LABORATORY	5-D	199	CELESTIAL SIMULATOR	6-D
20	THERMIONIC CONVERTER LABORATORY	4-F	200	FACILITIES ENGINEERING AND SERVICE	8-C
23	VACUUM FURNACE LABORATORY	4-F	201	CARPENTER SHOP	8-C
31	METALLOGRAPHIC LABORATORY	4-F	202	PROCUREMENT AND COMMUNICATIONS SUPPORT	7-C
32	THERMIONIC CONVERTER LABORATORY	4-F	211	ANTENNA LABORATORY	2-D
57	ANECCHOIC LABORATORY	4-D	218	CREDIT UNION	7-C
58	COMPRESSOR BUILDING	4-D	220	ICS TERMINAL	4-D
67	MATERIAL RESEARCH	5-C	224	SEWAGE LIFT STATION	8-C
72	ENGINEERING OFFICES	5-D	225	NITROGEN FACILITY OFFICE	5-D
78	HYDRAULICS LABORATORY	5-E	226	SOLVENT STORAGE	5-D
79	WIND TUNNEL (20-inch)	4-D	227	GUARD SHELTER (MESA)	2-C
80	WIND TUNNEL (21-inch)	4-D	228	COOLING TOWER (A-B)	4-B
81	SPACE SCIENCES LABORATORY	4-F	229	SHIELDED ROOM BUILDING	5-D
82	HIGH VACUUM LABORATORY	5-D	230	SPACE FLIGHT OPERATIONS FACILITY	5-C
83	QUALITY ASSURANCE	5-D	231	PAINT SHOP	8-C
84	CHEMICAL MATERIALS LABORATORY	5-E	233	SYSTEMS DEVELOPMENT	7-C
86	SOLID OXIDIZER LABORATORY	4-E	234	LUMBER STORAGE	8-C
87	PROPELLANT CONDITIONING LABORATORY	4-E	237	COOLING TOWER	4-E
88	MIXING LABORATORY	4-E	238	TELECOMMUNICATIONS	5-C
89	LASER LABORATORY	4-E	239	PROPELLANT CONDITIONING LABORATORY	4-E
90	PYROTECHNICS LABORATORY	4-E	241	RECEIVING AND SHIPPING	7-D
91	AIR DRYER	5-D	243	REMOTE ANTENNA RANGE CONTROL	2-C
97	DEVELOPMENT LABORATORY AND OFFICES	4-E	244	CHEMICAL ENGINEERING	4-E
98	SOLID FUEL LABORATORY	4-E	245	SPECTROSCOPY LABORATORY	4-B
103	FABRICATION SHOP	5-F	246	SOILS TEST LABORATORY	4-D
106	GLASSBLOWING LABORATORY	4-D	248	10-FT SPACE SIMULATOR	4-C
107	LASER RESEARCH LABORATORY	4-F	249	VISITOR RECEPTION	6-B
110	FUEL STORAGE DOCK	4-D	250	MAIN GUARD SHELTER	6-B
111	TECHNICAL INFORMATION	5-C	251	GYRO LABORATORY	4-A
113	PNEUMATICS LABORATORY	5-E	252	GUARD SHELTER	6-B
114	ELECTRONICS DEVELOPMENT	5-C	253	MAGNETICS LABORATORY	4-A
116	PROPELLANT STORAGE DOCK	6-E	255	SEWAGE LIFT STATION	7-C
117	LIQUID AND SOLID PROPELLANT LABORATORY	4-D	256	MODEL RANGE CONTROL	2-C
121	EMPLOYEE DEVELOPMENT CENTER	4-F	257	MAIN GUARD ISLAND	6-B
122	ENERGY CONVERSION SYSTEMS	5-D	258	WATER RESERVOIR	3-F
125	COMBINED ENGINEERING SUPPORT	5-D	259	LIQUID NITROGEN BOTTLING STORAGE	5-D
126	INFORMATION SYSTEMS DEVELOPMENT	5-B	260	ILLUMINATOR EQUIPMENT	3-B
129	COMBUSTION RESEARCH LABORATORY	5-E	261	CONTROLLED STORAGE	6-D
134	THERMIONIC ASSEMBLY LABORATORY	4-F	262	RADIOMETER	2-B
138	MISSION OPERATIONS	5-C	263	FIRST AID	6-D
140	PROPULSION MATERIALS STORAGE	4-D	264	SPACE FLIGHT SUPPORT	6-C
141	PROPULSION MATERIALS STORAGE	4-D	267	WATER RESERVOIR	3-C
143	SOLID ROCKET DOCK	4-E	268	PUMP HOUSE	3-C
144	ENVIRONMENTAL LABORATORY	4-C	269	GROUPS MAINTENANCE	7-D
145	MAGAZINE PROPELLANT	4-E	270	SEWAGE METERING STATION	7-B
148	ENERGY CONVERSION LABORATORY	4-D	271	OIL STORAGE	6-D
149	ENERGY CONVERSION DEVELOPMENT	4-D	272	EAST ILLUMINATOR	3-D
150	25-FT SPACE SIMULATOR	4-C	273	ANTENNA TOWER	3-D
156	COMPUTER PROGRAM OFFICES	5-C	274	COOLING TOWER	7-D
157	APPLIED MECHANICS	6-D	275	PYROTECHNIC STORAGE	4-E
158	MATERIALS RESEARCH PROCESSING LABORATORY	6-D	276	PROPELLANT STORAGE	3-E
159	PUMP HOUSE (WATER)	4-F	277	ISOTOPE THERMOELEC SYS APPL LAB	5-E
160	PUMP HOUSE (SEWAGE)	6-D	278	ROBOTICS LABORATORY	6-D
161	TELECOMMUNICATIONS LABORATORY	5-C	279	GUARD SHELTER - GATE "E"	7-C
166	COOLING TOWER	4-D	280	STATIC TEST TOWER	4-D
167	CAFETERIA	6-C	281	FIREMAN AND GUARD STATION	6-D
168	INSTRUMENT SYSTEMS LABORATORY	7-C	283	METAL STORAGE	6-D
169	EARTH SPACE SCIENCE	7-C	284	TRANSPORTATION OFFICE	5-E
170	FABRICATION SHOP	7-D	285	ARROYO BRIDGE	4-G
171	MATERIAL SERVICES	7-D	286	GUARD SHELTER	4-F
173	TEST SHELTER	4-F	287	GUARD ISLAND	4-F
175	WATER RESERVOIR	3-F	288	PROJECT EQUIPMENT STORAGE	4-D
177	TRANSPORTATION GARAGE	5-E	289	MAIN SEWAGE LIFT STATION	7-B
179	SPACECRAFT ASSEMBLY FACILITY	7-C	290	ANTENNA INSPECTION	2-D
180	ADMINISTRATION	6-B	291	PROCUREMENT SERVICES	8-C
183	PHYSICAL SCIENCES LABORATORY	6-C	292	FIRE TRUCK SHELTER	6-C
184	ELECTRONIC STORES	6-D	293	INSTRUMENTATION CABLE AMPLIFIER BUILDING	6-C
185	PROGRAMMING OFFICE	5-C	295	ANTENNA TEST FACILITY	2-E
186	SCIENCE EXHIBITS AND ENGINEERING	7-B	296	CENTRAL COOLING TOWER	5-D
187	CHEMICAL STORAGE	6-E	297	XENON TEST LABORATORY	4-C
189	ELECTRONIC LABORATORY ANNEX	5-D	298	FREQUENCY STANDARDS LABORATORY	5-A
190	PROCUREMENT OFFICES	8-C	299	ASSEMBLY, HANDLING, SHIPPING EQUIP FAC	4-D
191	MATERIALS COMPATIBILITY LABORATORY	3-F	300	EARTH AND SPACE SCIENCES LABORATORY	5-E
195	GUARD SHELTER	7-C	301	CENTRAL ENGINEERING BUILDING	6-C
196	GUARD SHELTER	5-B	302	MICRO DEVICES LABORATORY	5-E
197	SOLID PROPELLANT ENGINEERING LABORATORY	4-E	303	ENGINEERING SUPPORT BUILDING	5-E



## PHOTO ANALYSIS

MAY 6, 1941 (FIGURE 4)

The 1941 photograph shows the condition of the La Canada foothills and Seco Canyon prior to the establishment of NASA's Jet Propulsion Laboratory (JPL) facility. The annotated JPL facility boundary is based on a JPL facility map supplied by EPA Region 9 (Figure 3) and the shape of the JPL facility as observed on the 1992 photographs. The annotated boundary does not represent legal property ownership lines. The same JPL facility boundary is shown on all years of photography used in this report within the limits of using unrectified photographs and different photo scales.

An unpaved road provides vehicle access into the study area from the south via Oak Grove Road (Annotation A). This unpaved road appears to be the precursor to Explorer Road and goes to a ground scarred area, distinctive with exposed, bare earth (Annotation B). Cultivated cropland is visible in the south central portion of the study area (Annotation C). The northern portion of the study area consists of the south-facing slopes of the La Canada foothills (Annotation D). There are no discernible laboratory buildings or jet engine testing facilities. No liquid waste disposal pits, ponds, lagoons, or impoundments are identified.

Surface runoff drains down from the La Canada foothills and south, across the future JPL facility, into the Seco Arroyo via natural gullies and valleys.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- ++++ RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 4. Future location of NASA Jet Propulsion Laboratory, May 6, 1941.  
Approximate scale 1:11,200.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X-X-X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- XXXXXX FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

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- ==== VEHICLE ACCESS
- + + + + RAILWAY

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- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 4. Future location of NASA Jet Propulsion Laboratory, May 6, 1941. Approximate scale 1:11,200.

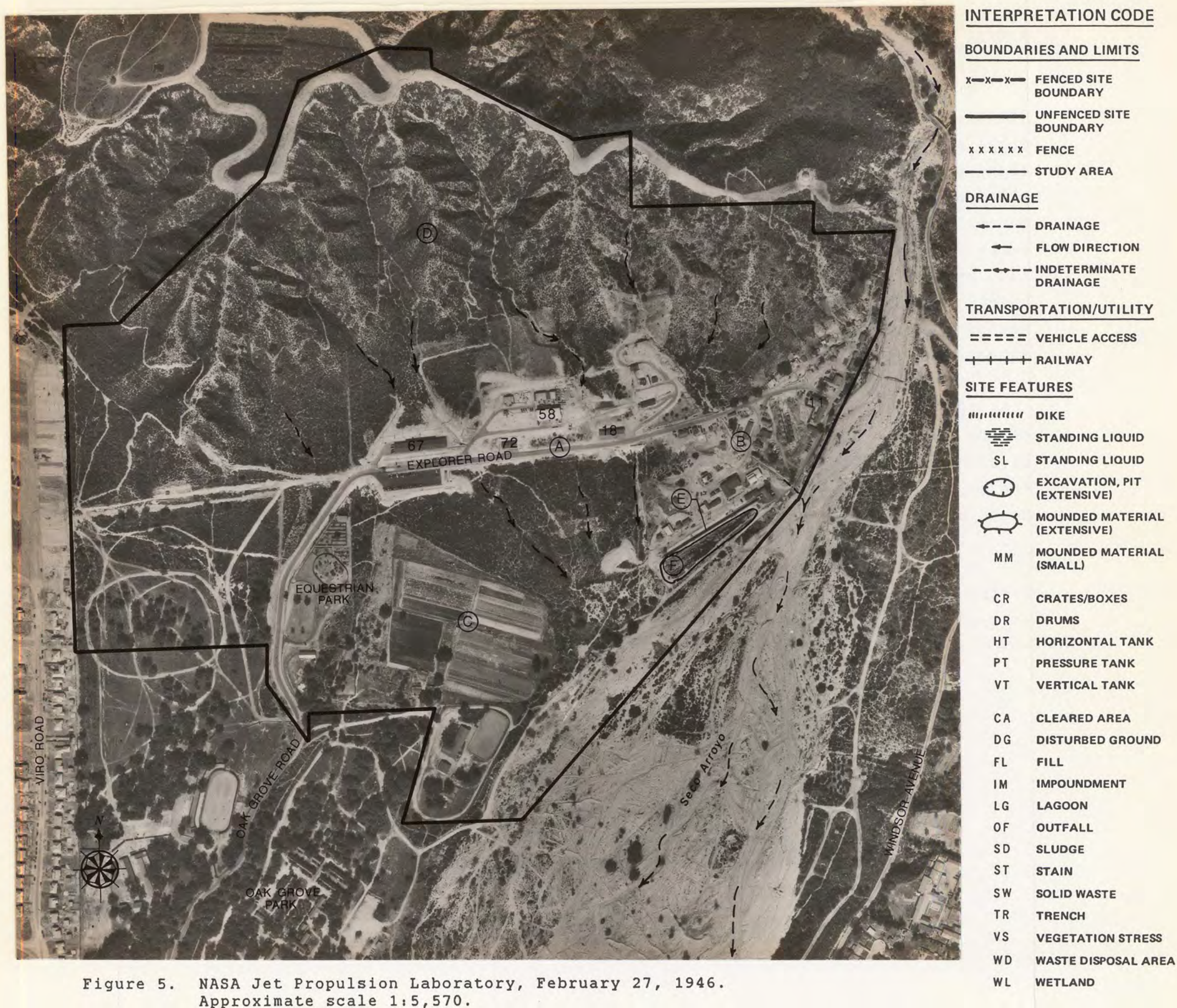


FEBRUARY 27, 1946 (FIGURE 5)

The locations of previously reported features noted on the earlier photograph (Annotations A through D) are also annotated on this photograph as reference points. Construction of laboratories, test and support buildings has occurred along the north side of Explorer Road (Annotation A). The main vehicle access into the facility is via Oak Grove Road from the southwest. Windsor Avenue via a bridge across the Seco Arroyo provides additional vehicle access from the east. Additional offices, laboratories, and test facilities are also being constructed along East Mariner Road (Annotation B). A few JPL buildings, first observed on the 1946 photograph, are annotated with numbers to serve as reference locations (Annotations 11, 18, 58, 67, and 72). The building numbers annotations are consistent with the JPL facility map furnished by EPA Region 9 (Figure 3).

A long, concrete-lined, pool/tank filled with liquid is at the southeast portion of the study area (Annotation E). This pool/tank is possibly a test facility structure because of its close proximity to other laboratory buildings. Dark-toned material, possibly sludge, has been piled on the south side of the long pool/tank (Annotation F).









## INTERPRETATION CODE

## BOUNDARIES AND LIMITS

**X—X—X— FENCED SITE BOUNDARY**

UNFENCED SITE  
ND

X X X X X X FENCE

## STUDY AREA

## DRAINAGE

← - - - DRAINAGE

← FLOW DIRECTION

---<--- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

===== VEHICLE ACCESS

† † † † RAILWAY

## SITE FEATURES

 **DIKE**
**STANDING LIQUID**SL      **STANDING LIQUID**

 EXCAVATION, PIT  
(EXTENSIVE)


**MOUNDED MATERIAL  
(EXTENSIVE)**

MM MOUNDED MATERIAL (SMALL)

CR CRATES/BOXES

DR DRUMS

HT HORIZONTAL TANK

PT PRESSURE TANK

**VT VERTICAL TANK**

CA      CLEARED AREA

**DG DISTURBED GROUND**

FL FILL

IM IMPOUNDMENT

LG LAGOON

OF OUTFALL

SD SLUDGE

ST STAIN

SW SOLID WASTE

TR TRENCH

**VS VEGETATION STRESS**

WD WASTE DISPOSAL AREA

WL WETLAND

Figure 5. NASA Jet Propulsion Laboratory, February 27, 1946.  
Approximate scale 1:5,570.



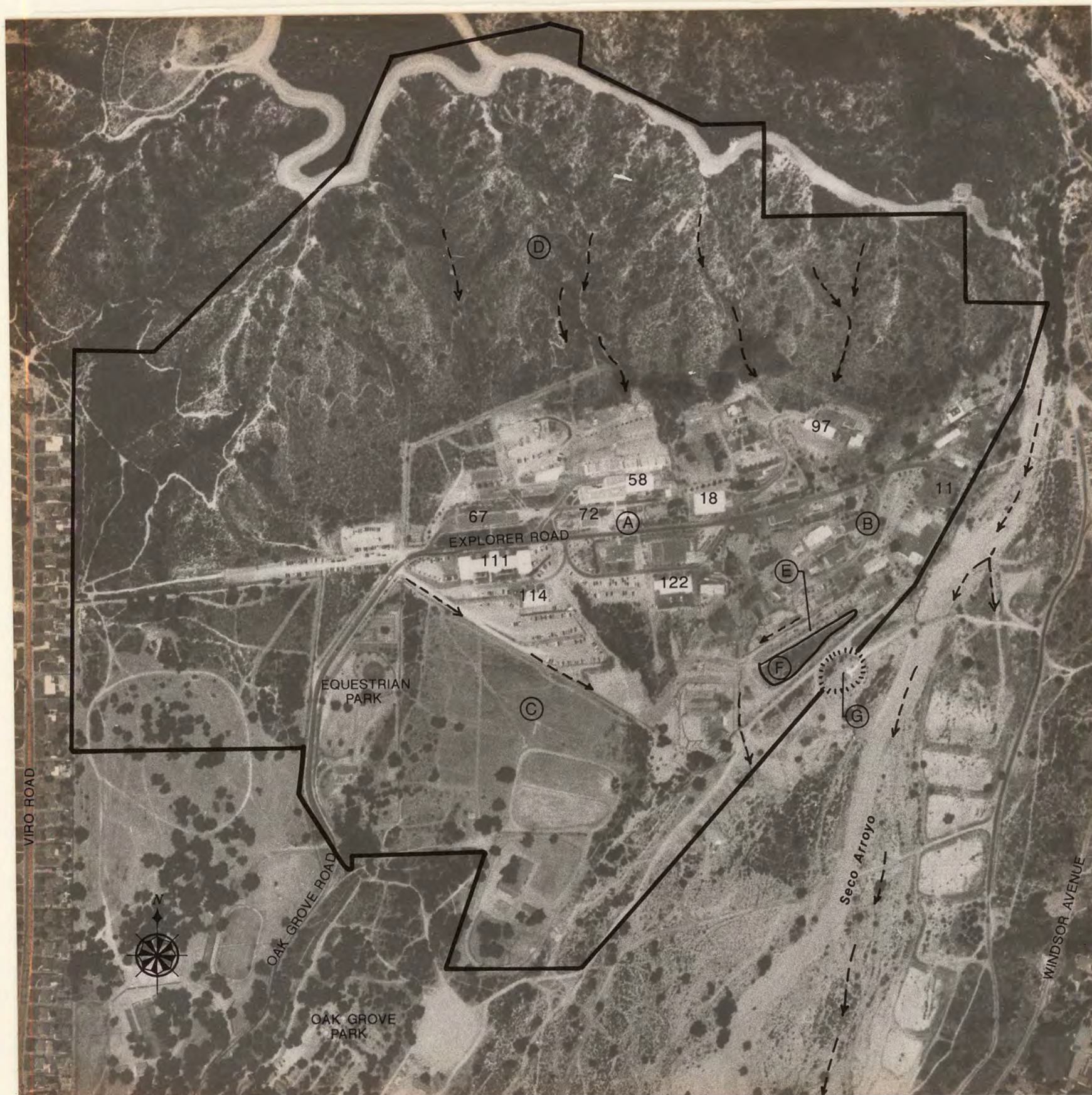
AUGUST 15, 1952 (FIGURE 6)

The locations of previously reported features noted on the earlier photographs (Annotations A through F) are also annotated on this photograph as reference points. Those previously annotated JPL buildings are also annotated as reference locations (Annotations 11, 18, 58, 67, and 72). The 1952 photograph reveals the JPL facility continues to develop along Explorer (Annotation A) and Mariner Roads (Annotation B). Several additional laboratory and support buildings have been constructed. A select number of these have been annotated as reference locations (Annotations 111, 114, 122, and 97). The previously reported cultivated cropland in the south central portion of the study area is no longer cultivated (Annotation C). No construction activity is observed in the northern, foothills portion of the study area (Annotation D).

The previously reported long, liquid-filled pool/tank in the southeast portion of the JPL facility remains discernible (Annotation E). The dark material, first described on the 1946 photograph (Figure 5, Annotation F), along the south side of the pool/tank appears lighter in tone (Annotation F). The apparent tone difference could be the result of moisture or vegetation changes.

A probable waste disposal structure is a circular impoundment near the southeast perimeter of the study area (Annotation G). There is a vehicle access trail into this impoundment to facilitate possible dumping.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X—X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X X FENCE
- — — — — STUDY AREA

### DRAINAGE

- — — — — DRAINAGE
- — — — — FLOW DIRECTION
- — — — — INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- + + + + + RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- ⊖ EXCAVATION, PIT (EXTENSIVE)
- ⊕ MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 6. NASA Jet Propulsion Laboratory, August 15, 1952.  
Approximate scale 1:5,350.







NOVEMBER 17, 1952 (FIGURE 7)

The locations of previously reported features and those previously annotated JPL buildings are annotated on this photograph as reference locations (Annotations A through G). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction. There has been continued construction within the study area north of and along Explorer and Mariner Roads (Annotations A and B). A select number of buildings, first observed on the 1952 photograph, have been annotated as reference points (Annotations 79, 82, 83, 116). Rainwater runoff from the hillside and surface drainage flow southward across the facility to enter the Seco Arroyo via open drainage channels and covered storm sewers. The previously reported, no-longer-cultivated land, in the southern central portion of the site has been partially paved into a parking lot (Annotation C). There has been no significant development in the northern portion of the study area (Annotation D).

The previously reported long pool/tank appears to have been modified with the construction of a building or structure across it (Annotation E). No waste disposal activity is discernible at the area on the south side of the long pool/tank (Annotation F) or at the adjacent impoundment (Annotation G). Waste disposal activity is suggested by the presence of two trenches (Annotation H and I) at the southeast portion of the site that are adjacent to Seco Arroyo. Bottom-lining material or piping could not be discerned within these structures. In the event liquid wastes were dumped in these structures it is likely these liquids could migrate through the alluvium of the arroyo and contaminate the Seco Arroyo drainage basin. It could not be confirmed that these pit and trench structures are cesspool seepage pits; no visible seepage or signs of vegetation stress are identified near these structures or elsewhere within the study area.





# INTERPRETATION CODE

## BOUNDARIES AND LIMITS

- x-x-x-x-x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- STUDY AREA

## DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

- ==== VEHICLE ACCESS
- ++++ RAILWAY

## SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 7. NASA Jet Propulsion Laboratory, November 17, 1952.  
Approximate scale 1:5,070.



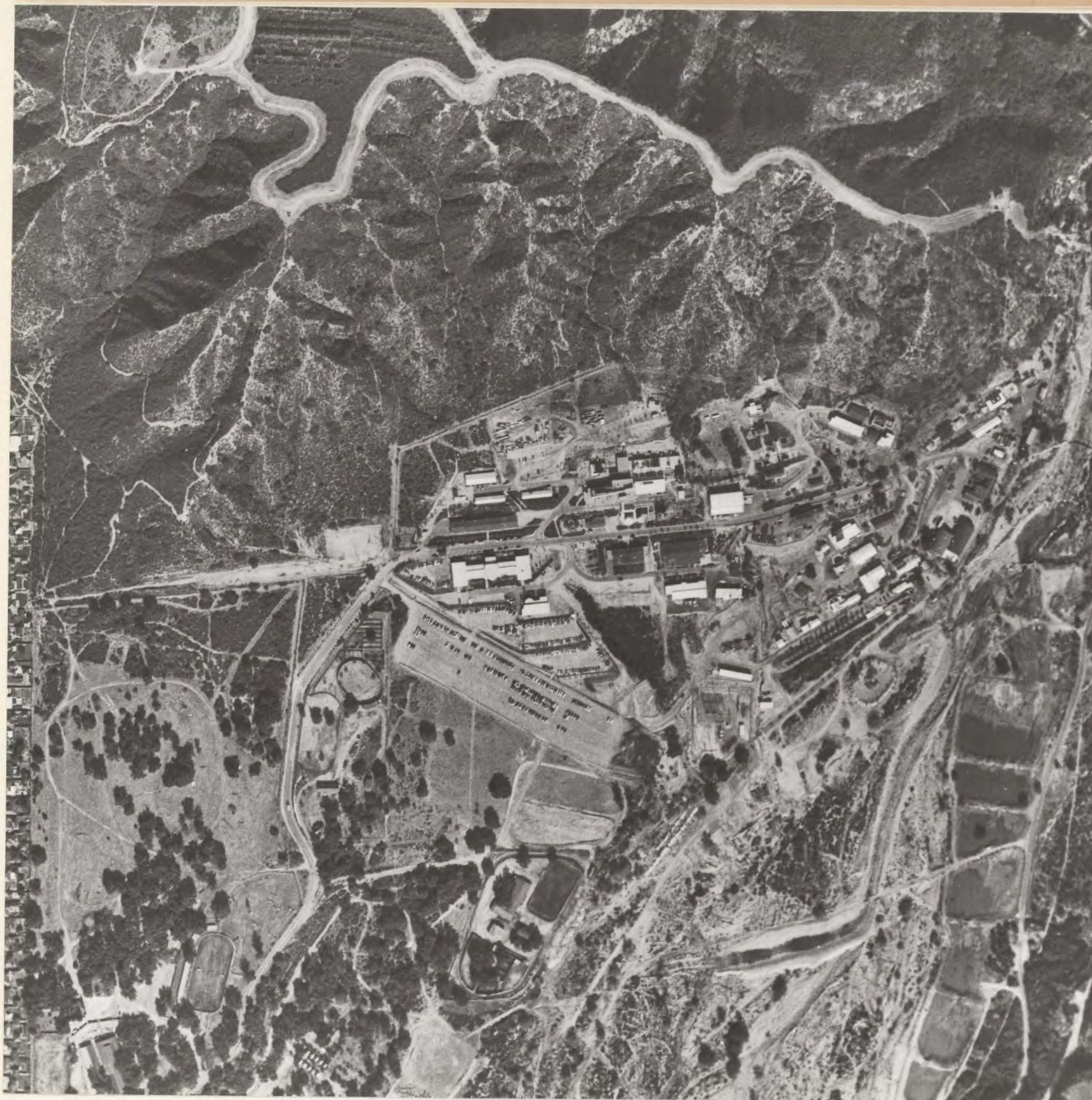


Figure 7. NASA Jet Propulsion Laboratory, November 17, 1952.  
Approximate scale 1:5,070.

## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- x—x—x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ==== VEHICLE ACCESS
- + + + + RAILWAY

### SITE FEATURES

- ////// DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND



JULY 28, 1964 (FIGURE 8)

The locations of previously reported features and those previously annotated JPL buildings are annotated on this photograph as reference locations (Annotations A through I). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction.

The 1964 photograph reveals significant construction has occurred at the JPL facility since 1952 (Figure 7) with almost double the amount of land presently developed with buildings and parking lots. By 1964, numerous buildings have been constructed in the western and southern portions of the study site on locations that were formerly parking areas or undeveloped land since 1946 (Figures 4 through 7, Annotations C). A few of the JPL buildings first observed in 1964 are annotated as reference points (Annotations 126, 144, 158, 186, and 201). Development is also observed along the ridge-line road that runs along the JPL facility's northern perimeter.

The location of the previously reported long pool/tank is still identified by the row of adjacent trees but the pool/tank appears non-operational (Annotation E). Construction of new buildings has occurred on the previously identified area "F". The suspected waste handling/disposal pit, trench, and impoundment previously reported are not discerned due to earthmoving activity associated with construction; however, the approximate locations of these former structures are annotated (Annotations G, H, I). No operating waste disposal units are observed.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- x-x-x-x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

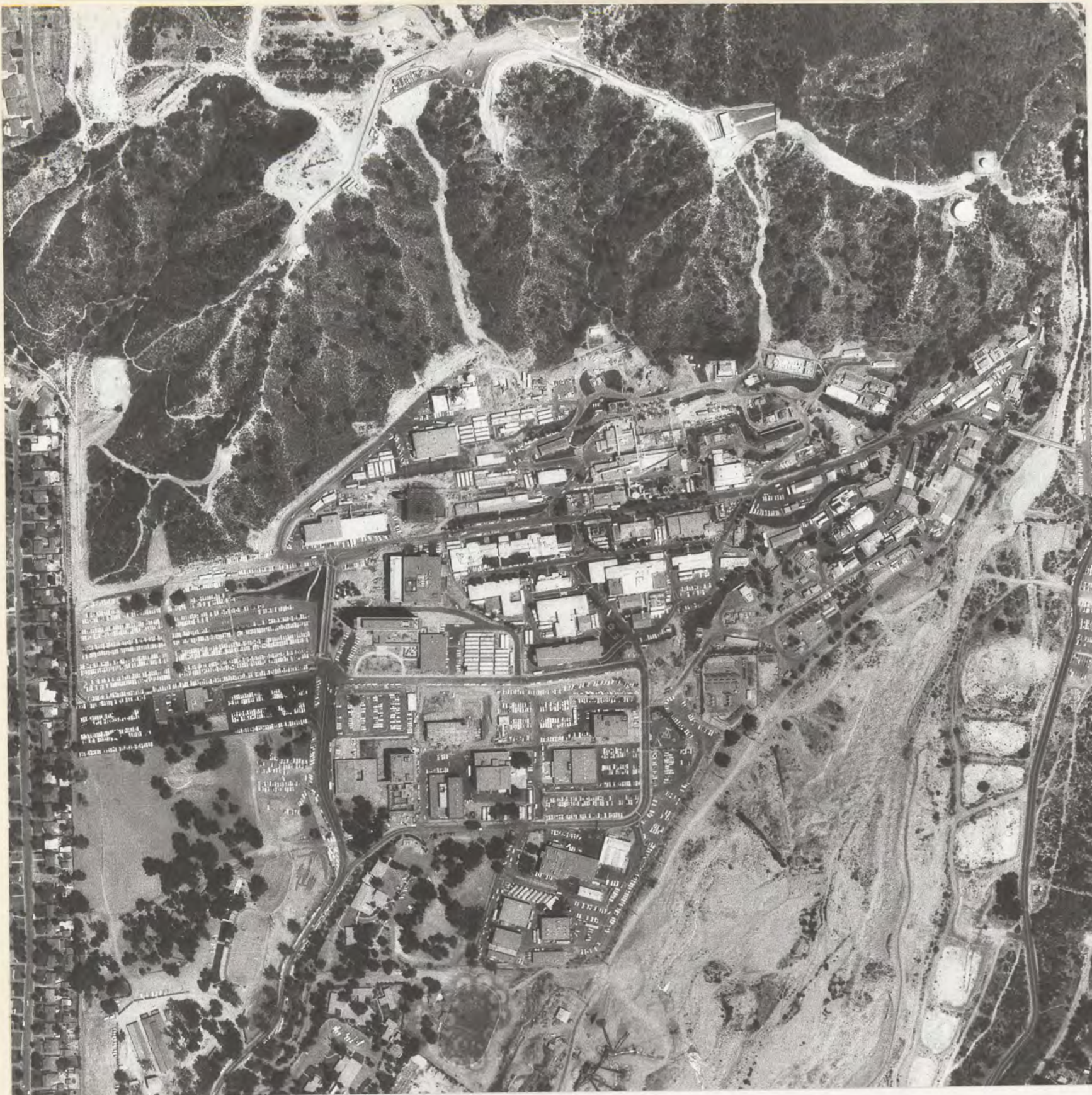
- ==== VEHICLE ACCESS
- ↑ ↑ ↑ RAILWAY

### SITE FEATURES

- DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 8. NASA Jet Propulsion Laboratory, July 28, 1964.  
Approximate scale 1:5,200.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

X—X—X—X— FENCED SITE  
BOUNDARY

———— UNFENCED SITE  
BOUNDARY

X X X X X X FENCE

———— STUDY AREA

### DRAINAGE

——— DRAINAGE

——— FLOW DIRECTION

——— INDETERMINATE  
DRAINAGE

### TRANSPORTATION/UTILITY

===== VEHICLE ACCESS

+++++ RAILWAY

### SITE FEATURES

||||| DIKE

SL STANDING LIQUID

SL STANDING LIQUID

EXCAVATION, PIT  
(EXTENSIVE)

MOUNDED MATERIAL  
(EXTENSIVE)

MM MOUNDED MATERIAL  
(SMALL)

CR CRATES/BOXES

DR DRUMS

HT HORIZONTAL TANK

PT PRESSURE TANK

VT VERTICAL TANK

CA CLEARED AREA

DG DISTURBED GROUND

FL FILL

IM IMPOUNDMENT

LG LAGOON

OF OUTFALL

SD SLUDGE

ST STAIN

SW SOLID WASTE

TR TRENCH

VS VEGETATION STRESS

WD WASTE DISPOSAL AREA

WL WETLAND

Figure 8. NASA Jet Propulsion Laboratory, July 28, 1964.  
Approximate scale 1:5,200.



SEPTEMBER 20, 1972 (FIGURE 9)

The locations of previously reported features and those previously annotated JPL buildings are annotated on this photograph as reference locations (Annotations A through I). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction. A select group of buildings first observed in 1972 are annotated (Annotations 157, 264, and 283) in addition to those buildings first noted along the ridge-line road that runs along the JPL facility's northern perimeter (Annotations 251 and 267).

The 1972 photograph reveals continued construction since 1964 with the addition of several new parking lots; one of these is along the south end of the JPL facility, along the bank of the Seco Arroyo (Annotation J). The suspected waste handling/disposal pit, trench, and impoundment are covered with new parking lot pavement; these approximate former locations are annotated (Annotations G, H, and I). No operating waste disposal units are observed.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- x—x—x—x—x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x x FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- + + + + + RAILWAY

### SITE FEATURES

- ===== DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 9. NASA Jet Propulsion Laboratory, September 20, 1972.  
Approximate scale 1:7,000.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

X—X—X—X— FENCED SITE  
BOUNDARY

———— UNFENCED SITE  
BOUNDARY

X X X X X X FENCE

———— STUDY AREA

### DRAINAGE

← — — — — — DRAINAGE

← FLOW DIRECTION

— — — — — INDETERMINATE  
DRAINAGE

### TRANSPORTATION/UTILITY

===== VEHICLE ACCESS

+ + + + + RAILWAY

### SITE FEATURES

||||| DIKE



STANDING LIQUID

SL

STANDING LIQUID



EXCAVATION, PIT  
(EXTENSIVE)



MOUNDED MATERIAL  
(EXTENSIVE)

MM

MOUNDED MATERIAL  
(SMALL)

CR CRATES/BOXES

DR DRUMS

HT HORIZONTAL TANK

PT PRESSURE TANK

VT VERTICAL TANK

CA CLEARED AREA

DG DISTURBED GROUND

FL FILL

IM IMPOUNDMENT

LG LAGOON

OF OUTFALL

SD SLUDGE

ST STAIN

SW SOLID WASTE

TR TRENCH

VS VEGETATION STRESS

WD WASTE DISPOSAL AREA

WL WETLAND

Figure 9. NASA Jet Propulsion Laboratory, September 20, 1972.  
Approximate scale 1:7,000.



NOVEMBER 25, 1977 (FIGURE 10)

The locations of previously reported features and those previously annotated JPL buildings are annotated as reference locations (Annotations A through J). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction. The location of the previously reported pool/tank is absent (Annotations E). This area is now a large parking lot. No operating waste disposal units are observed.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- x—x—x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- — — STUDY AREA

### DRAINAGE

- — — DRAINAGE
- — — FLOW DIRECTION
- — — INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ==== VEHICLE ACCESS
- + + + + RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL SL STANDING LIQUID
- ⊖ EXCAVATION, PIT (EXTENSIVE)
- ⊕ MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 10. NASA Jet Propulsion Laboratory, November 25, 1977.  
Approximate scale 1:8,300.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X—X— FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X X FENCE
- STUDY AREA

### DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- +++++ RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL SLANDING LIQUID
- SL SLANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 10. NASA Jet Propulsion Laboratory, November 25, 1977.  
Approximate scale 1:8,300.



OCTOBER 21, 1980 (Figure 11)

The locations of previously reported features and those previously annotated JPL buildings are annotated as reference points "A" through "J". The 1980 photograph does not reveal significant construction at the JPL facility since 1977.

The suspected waste handling/disposal structures previously reported are no longer observed (Annotations E through I); parking lots now occupy most of these areas (Annotation J). No operating waste disposal units are observed.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X—X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X FENCE
- — — — — STUDY AREA

### DRAINAGE

- — — — — DRAINAGE
- — — — — FLOW DIRECTION
- — — — — INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

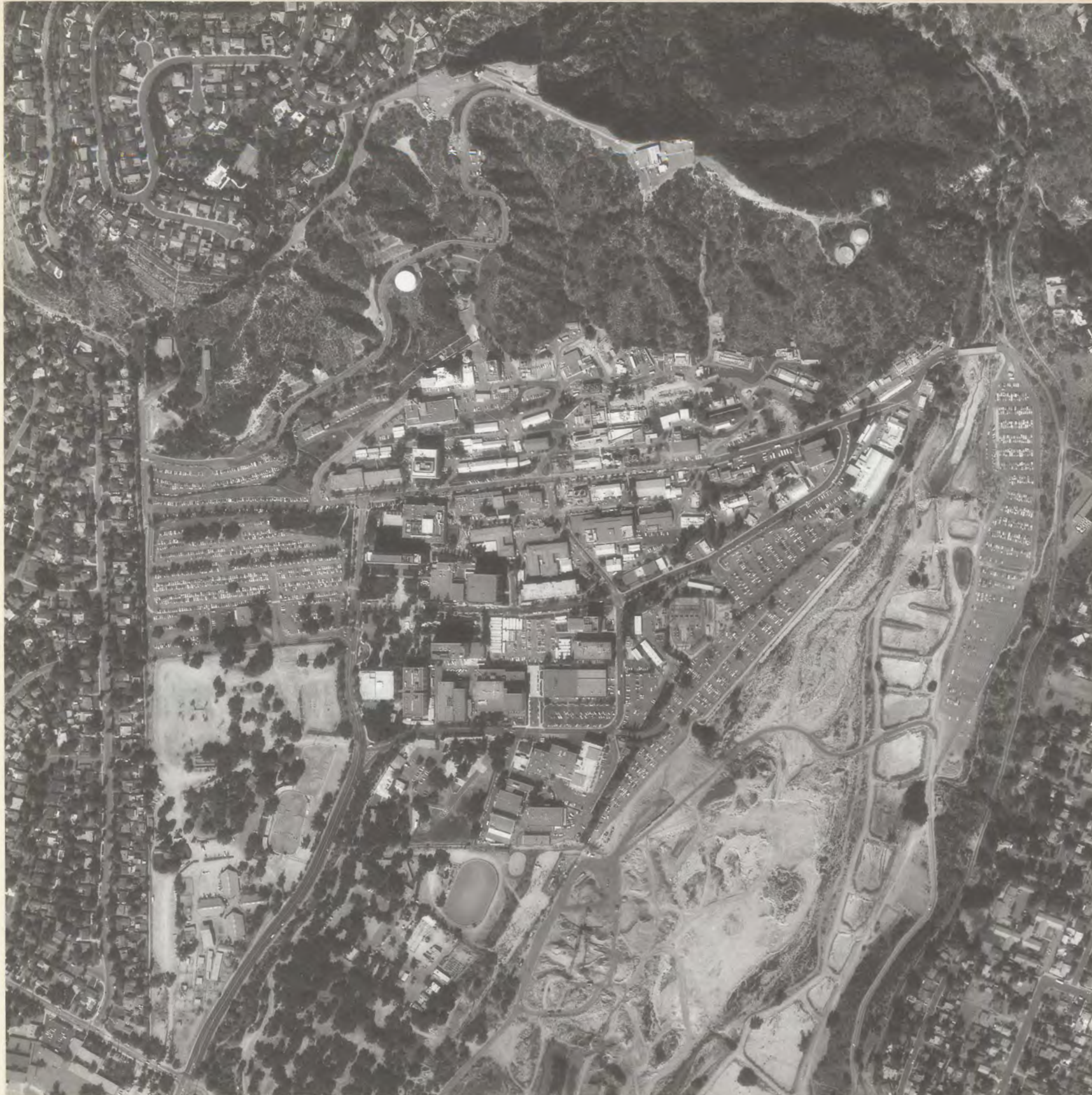
- ===== VEHICLE ACCESS
- +++++ RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 11. NASA Jet Propulsion Laboratory, October 21, 1980.  
Approximate scale 1:6,300.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X FENCE
- — — STUDY AREA

### DRAINAGE

- — — DRAINAGE
- > FLOW DIRECTION
- >—> INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- + + + + RAILWAY

### SITE FEATURES

- |||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- ⊖ EXCAVATION, PIT (EXTENSIVE)
- ⊖ MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

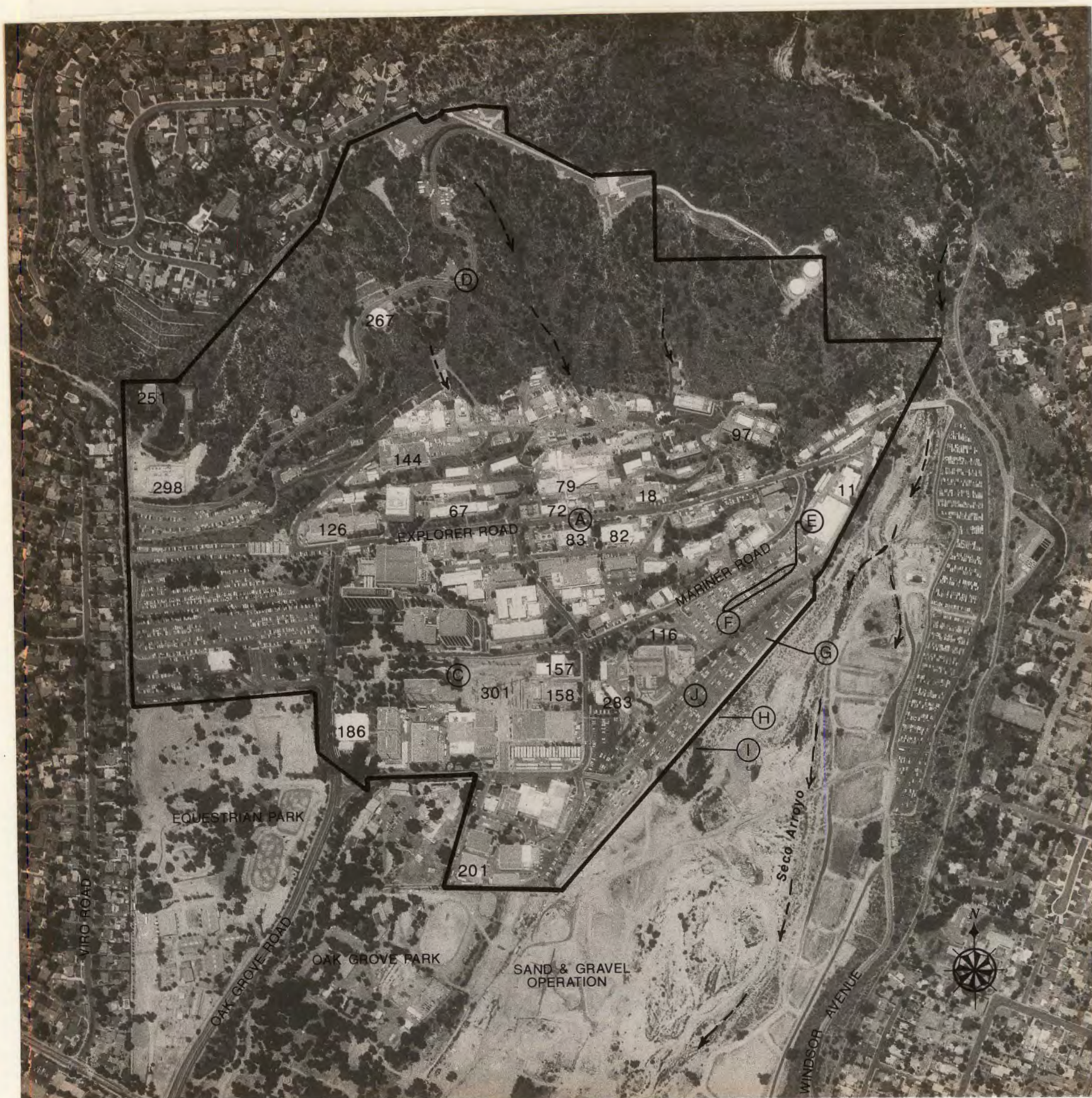
Figure 11. NASA Jet Propulsion Laboratory, October 21, 1980.  
Approximate scale 1:6,300.



JULY 3, 1985 (FIGURE 12)

The locations of previously reported features and those previously annotated JPL buildings are annotated as reference locations (Annotations A through J). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction. The 1985 photograph reveals continued construction has occurred at the JPL study site since 1980 with two building construction sites (Annotations 298 and 301). No operating waste disposal units are observed.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- X—X—X—X—X FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X X FENCE
- — — — — STUDY AREA

### DRAINAGE

- — — — — DRAINAGE
- — — — — FLOW DIRECTION
- — — — — INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- + + + + + RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL SLANDING LIQUID
- SL SLANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 12. NASA Jet Propulsion Laboratory, July 3, 1985.  
Approximate scale 1:6,680.





## INTERPRETATION CODE

### BOUNDARIES AND LIMITS

- x-x-x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- — — STUDY AREA

### DRAINAGE

- — — DRAINAGE
- — — FLOW DIRECTION
- — — INDETERMINATE DRAINAGE

### TRANSPORTATION/UTILITY

- ===== VEHICLE ACCESS
- + + + + + RAILWAY

### SITE FEATURES

- ||||| DIKE
- SL SLANDING LIQUID
- SL SLANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

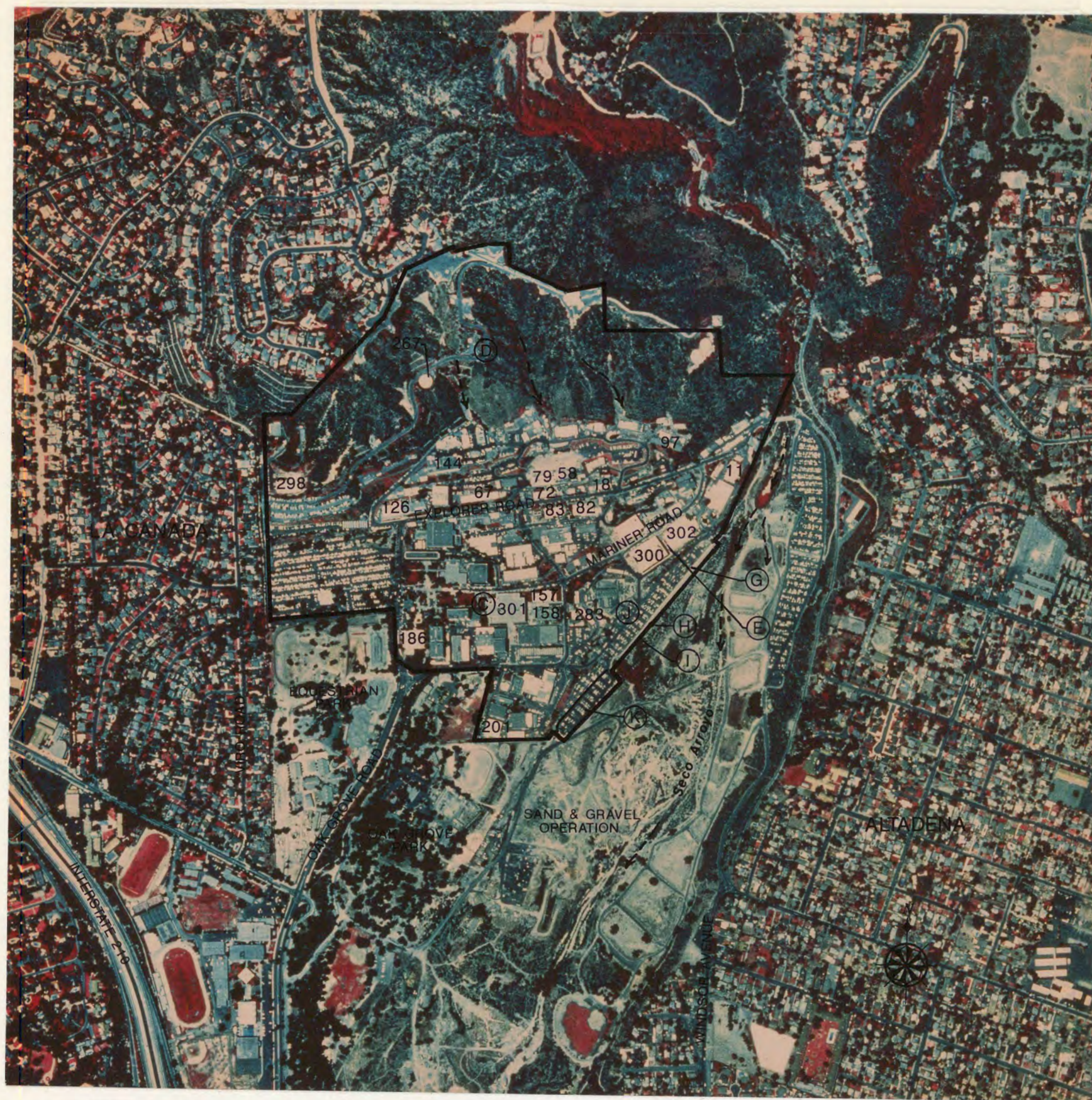
Figure 12. NASA Jet Propulsion Laboratory, July 3, 1985.  
Approximate scale 1:6,680.



AUGUST 3, 1989 (FIGURE 13)

The locations of previously reported features and those previously annotated JPL buildings are annotated as reference locations (Annotations A through J). The shape and size of several of these buildings have been modified and/or demolished to make space for ongoing construction. The 1989 photograph reveals continued construction has occurred at the JPL study site since 1985. Two additional buildings are first noted on the 1989 photograph (Annotations 300 and 302). The parking lot at the southeast corner of the study site has been enlarged (Annotation K). No operating waste disposal units are observed.





# INTERPRETATION CODE

## BOUNDARIES AND LIMITS

- x-x-x-x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- STUDY AREA

## DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

- ==== VEHICLE ACCESS
- + + + + RAILWAY

## SITE FEATURES

- DIKE
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 13. NASA Jet Propulsion Laboratory, August 3, 1989.  
Approximate scale 1:9,970.





## INTERPRETATION CODE

## BOUNDARIES AND LIMITS

**X—X—X— FENCED SITE  
BOUNDARY**

— UNFENCED SITE  
BOUNDARY

X X X X X X FENCE

### STUDY AREA

## DRAINAGE

← - - - DRAINAGE

← FLOW DIRECTION




---<=>--- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

===== VEHICLE ACCESS

RAILWAY

## SITE FEATURES

 DIKE
**STANDING LIQUID**SL     **STANDING LIQUID** EXCAVATION, PIT  
(EXTENSIVE)

**MOUNDED MATERIAL  
(EXTENSIVE)**

MM MOUNDED MATERIAL  
(SMALL)

CR CRATES/BOXES

DR DRUMS

HT HORIZONTAL TANK

PT PRESSURE TANK

VT VERTICAL TANK

CA CLEARED AREA

DG DISTURBED GROUND

FL FILL

IM IMPOUNDMENT

LG LAGOON

OF OUTFALL

SD SLUDGE

ST STAIN

SW SOLID WASTE

TR TRENCH

VS VEGETATION STRESS

WD WASTE DISPOSAL AREA

WL WETLAND

Figure 13. NASA Jet Propulsion Laboratory, August 3, 1989.  
Approximate scale 1:9,970.



SEPTEMBER 4, 1992 (FIGURES 14 THROUGH 17)

The 1992 low altitude, color photographs, with their improved photographic resolution and photo scale, provide a greater amount of information about the JPL facility. The previously reported features and building numbers noted on the earlier photographs (Annotations A through K) are also annotated on this photograph as reference points.

Several storage tanks are discernible throughout the facility and are annotated. These storage tanks could contain fuels, solvents, reagents, lubricants or other compounds that could pose pollution threats to the environment in the event of spillage or leakage. No visible evidence of spillage or leakage was noted. No operating waste disposal units are observed.



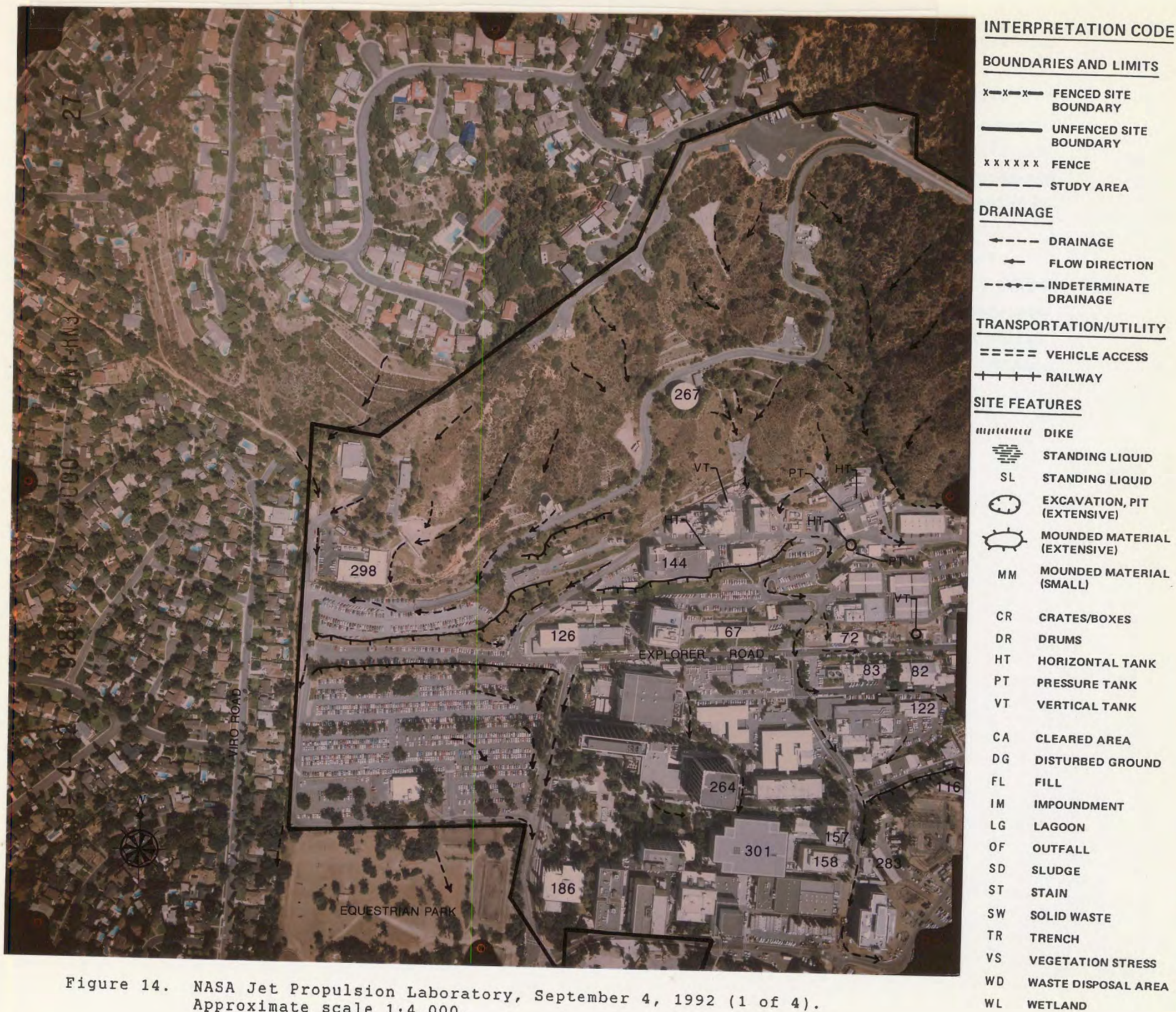


Figure 14. NASA Jet Propulsion Laboratory, September 4, 1992 (1 of 4).  
Approximate scale 1:4,000.





# INTERPRETATION CODE

## BOUNDARIES AND LIMITS

- x-x-x-x FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x FENCE
- STUDY AREA

## DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

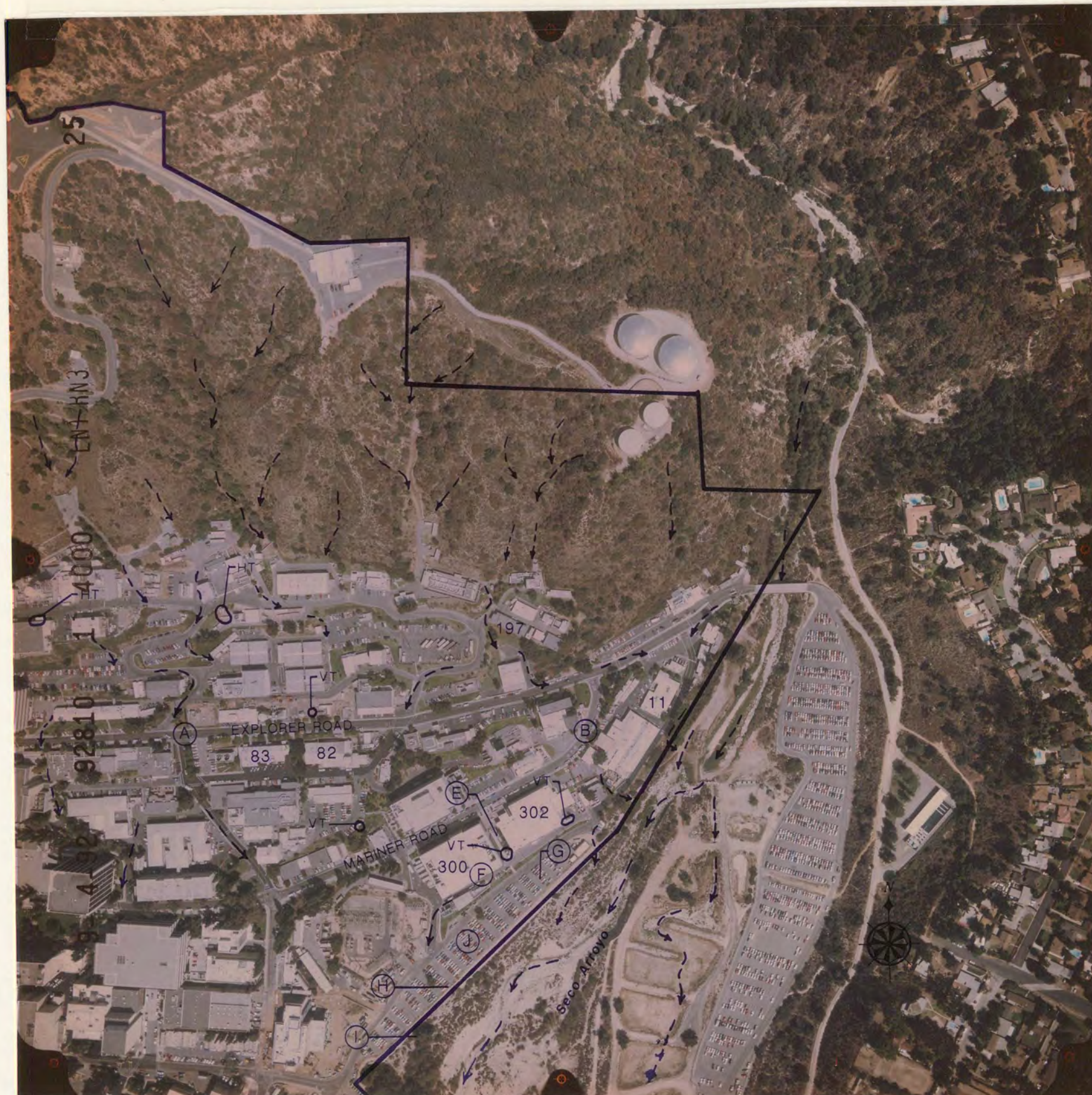
- ===== VEHICLE ACCESS
- ++++ RAILWAY

## SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- ⊖ EXCAVATION, PIT (EXTENSIVE)
- ⊕ MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 14. NASA Jet Propulsion Laboratory, September 4, 1992 (1 of 4).  
Approximate scale 1:4,000.





# INTERPRETATION CODE

## BOUNDARIES AND LIMITS

- X—X—X—X— FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- X X X X X X FENCE
- STUDY AREA

## DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

## TRANSPORTATION/UTILITY

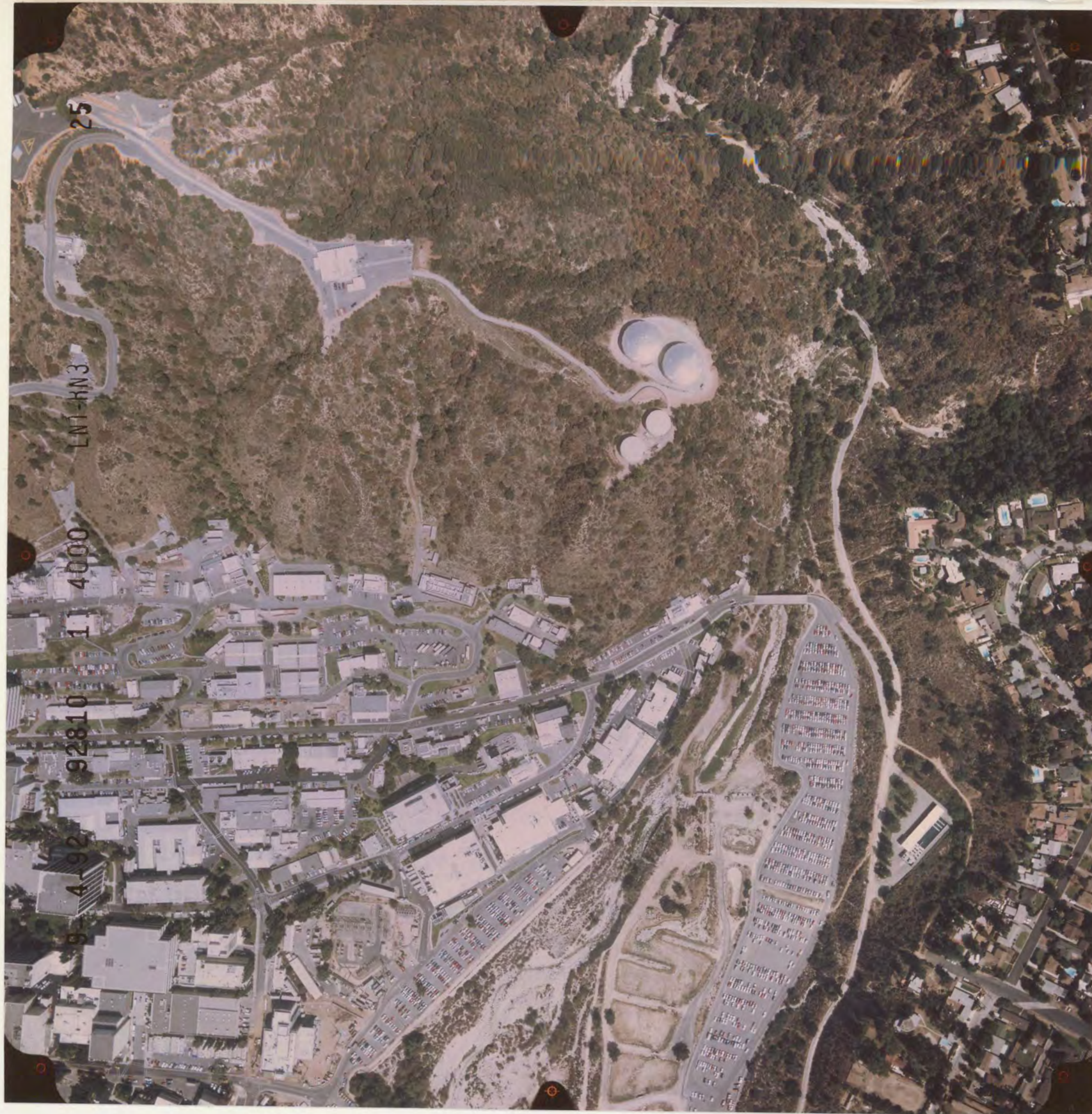
- ===== VEHICLE ACCESS
- +++++ RAILWAY

## SITE FEATURES

- ||||| DIKE
- SL STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

Figure 15. NASA Jet Propulsion Laboratory, September 4, 1992 (2 of 4).  
Approximate scale 1:4,000.





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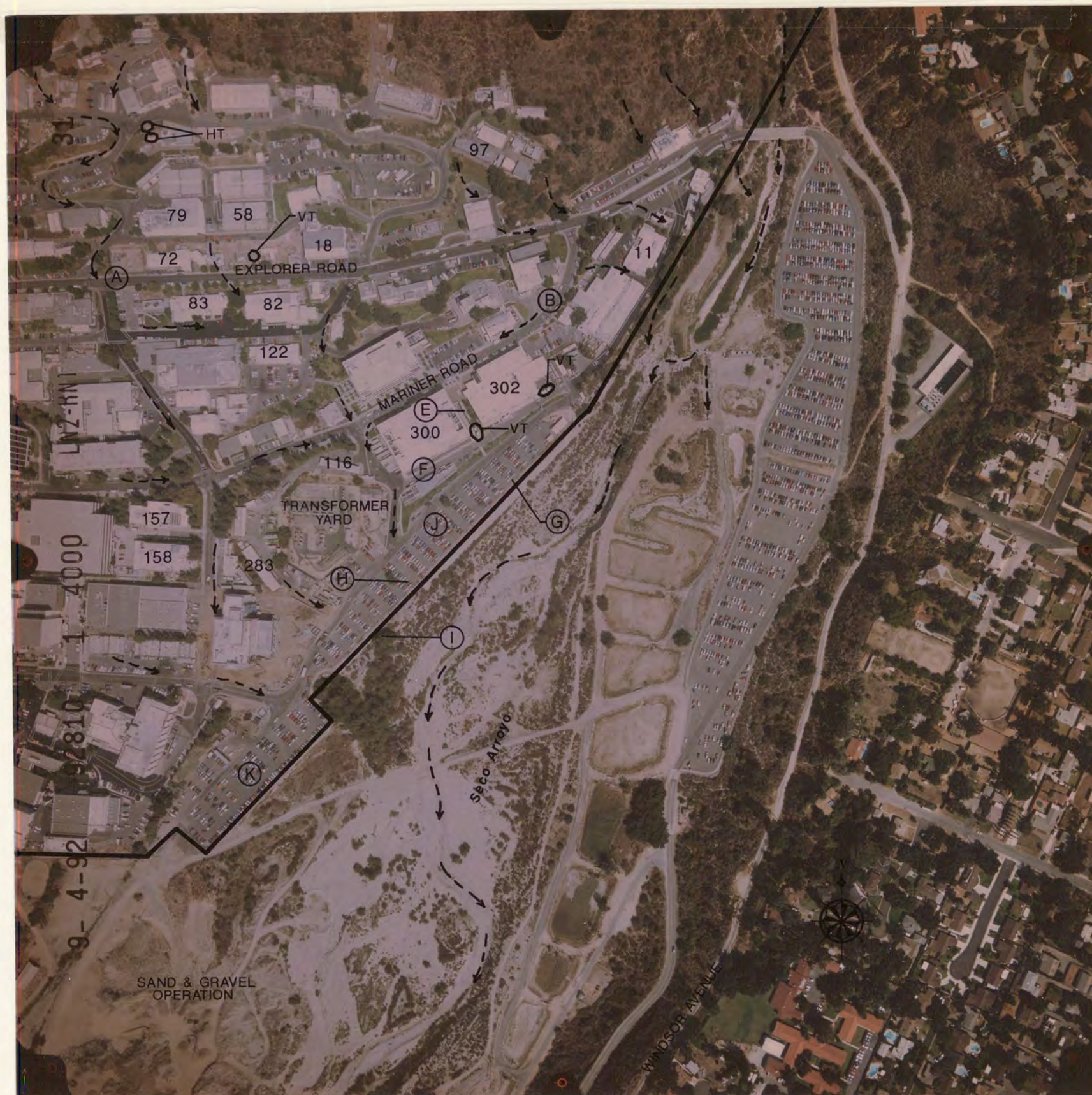
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